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| 09/942,669      | 08/31/2001 | Hiroyuki Sawada      | 213431US2           | 7809             |

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EXAMINER

COLAIANNI, MICHAEL

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1731

DATE MAILED: 07/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/942.669

Applicant(s)

SAWADA ET AL.

Examiner

Michael P Colaianni

Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133)
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "smaller" in claim 15 is a relative term, which renders the claim indefinite. The term "smaller" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The term "smaller" in claim 20 is a relative term, which renders the claim indefinite. The term "smaller" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably appraised of the scope of the invention.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Fumiyoshi, JP: 04-046024.

In claim 1, Fumiyoshi teaches the molding of softened glass into an optical part having an accurate surface corresponding to the molding surface of a higher temperature die in a pair of molding dies by maintaining the temperature difference between the two dies by a specified degree during cooling and curing of the glass (Fumiyoshi, Abstract, Page 1, Purpose). He also teaches the first mold comprising a first concave surface and the second mold comprising a convex surface (Fumiyoshi, Page 7, Fig. 1(a)); cooling the material until it reaches a temperature equal to or less than the glass transition temperature (Fumiyoshi, Page 3, Column 6, lines 30-40), and removing the cooled material from the first or second mold once cooling of the glass optical part is completed (Fumiyoshi, Page 7, Fig. 1(d)).

Fumiyoshi inherently teaches that in the cooling step, the second temperature of the second mold reaches the glass temperature prior to a time when a first temperature of the first mold reaches the glass transition temperature. He specifically teaches that one of the molds is coated with a high thermal conductivity coating (Fumiyoshi, Page 1, Column 1, lines 1-7); therefore, because one mold is coated it will reach the glass transition temperature,  $T_g$ , before the other mold due to the increase in heat transfer caused by the high thermal conductivity coating.

Claim 2 is rejected under 102(b) because Fumiyoshi teaches that the molding apparatus may have an upper mold as well as a lower mold (Fumiyoshi, Page 8, Fig. 3).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-14 and 18-19, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi, JP No. 04-046024 in view of Sato et al, Patent Number: 5,228,894. Fumiyoshi teaches the applicant's claimed invention. See the 102(b) rejection above for the Fumiyoshi teachings. However, Fumiyoshi does not teach using the first mold as the upper mold and the second mold as the lower mold.

However, as to claim 3, Sato et al teaches using a molding process where the first mold is the upper mold and the second mold is the lower mold (Sato, Column 6, Para. 2, Fig. 3).

Claims 4, 5, 6, and 7 are taught by Fumiyoshi. Fumiyoshi teaches that during the cooling process, the difference in temperature between the two molds is maintained at 10 °C. Therefore, it is obvious that when the second mold's second temperature reaches the glass transition temperature,  $T_g$ , the first temperature of the first mold is ( $T_g + 5\text{ °C}$ ) or greater (Fumiyoshi, Page 5, Column 9, Figure 1, Example 2, Column 2). Fumiyoshi teaches that applying a coating to a mold provides enhanced thermal conductivity (Fumiyoshi, Page 1, Column 1, lines 1-7). If the second mold is the mold with the high thermal conductivity coating, it conducts heat at a faster rate than the mold without the coating. It also cools faster than the mold without the coating layer.

Claims 8, 9, 10, 11, and 12 are rejected under 35 U.S.C. 103(a). Fumiyoshi teaches that applying a coating to a mold provides enhanced thermal conductivity. Obviously, a mold coated with a high thermal conductivity coating would reach a cooler temperature before an uncoated mold such that the second temperature of the second mold is lower than the first temperature of the first mold at the end of the molding step.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a). Fumiyoshi teaches applying a coating to a mold that provides enhanced thermal conductivity. Obviously, a mold coated with a highly thermal conductive coating would typically reach a lower temperature than an uncoated mold such that the second temperature of the second molding surface is lower than the first temperature of the first mold throughout the molding step because the high thermal conductivity coating would provide enhanced removal of heat from the mold during the molding process. Also, the withdrawal of heat and/or the addition of heat to the molds will be enhanced by the thermal conductive coating on the mold. Thus, the temperature difference between them will become smaller over time.

Claim 18 is rejected under 35 U.S.C. 103(a). Fumiyoshi teaches that when the second mold's second temperature reaches the glass transition temperature, the first temperature of the first mold is ( $T_g + 5^{\circ}\text{C}$ ) or greater (Fumiyoshi, Page 5, Column 9, Figure 1, Example 2, Column 2). If the second mold is the mold with the high thermal conductivity coating, it is obvious that the second temperature of the second mold is lower than the first temperature of the first mold throughout the molding step, particularly during the portion of the molding step when the glass material is cooling.

Note that during the initial pressing of the molding step, the mold with the high thermal conductivity coating will be higher than the mold without the coating because the mold with the coating heats up faster. Moreover, "throughout the molding step" as stated in claim 18 does not necessarily constitute that at every moment of the molding step, the second temperature of the second mold must be at a lower temperature than the first temperature of the first mold.

Claim 19 is rejected under 35 U.S.C. 103(a). Fumiyoshi teaches that during the cooling process, the difference in temperature between the two molds is maintained at 10 °C. Therefore, it is obvious that when the second mold's second temperature reaches the glass transition temperature,  $T_g$ , the first temperature of the first mold is ( $T_g + 5$  °C) or greater (Fumiyoshi, Page 5, Column 9, Figure 1, Example 2, Column 2). Fumiyoshi teaches that applying a coating to a mold provides enhanced thermal conductivity (Fumiyoshi, Page 1, Column 1, lines 1-7). If the second mold is the mold with the high thermal conductivity coating, it conducts heat at a faster rate than the mold without the coating. It also cools faster than the mold without the high thermal conductivity coating layer. Moreover, note that the high thermal conductivity coated second mold should maintain a lower temperature than the first mold throughout the molding step.

Claim 21 is rejected under 35 U.S.C. 103(a). Fumiyoshi teaches applying a coating to a mold provides enhanced thermal conductivity. Obviously, a high thermal conductivity coated mold would reach a cooler temperature before an uncoated mold such that the second temperature of the second molding surface is lower than the first

temperature of the first mold throughout the molding step. Also, the second mold should be at least 5 degrees centigrade lower than the first mold's first temperature during cooling because the molds are controlled to maintain a 10 °C difference.

It would have been prima facie obvious at the time the invention was made to combine Sato et al's upper and lower molds with Fumiyoshi's lens molding method to enhance the versatility of the molding process and to permit the production of lenses with desired optical characteristics.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi JP 4-046024 in view of Sato 5228894. Fumiyoshi teaches the applicant's claimed invention. See the 102(b) rejection for Fumiyoshi's teachings. However, Fumiyoshi does not teach claim 3 or claim 15.

However, Sato et al teaches where the first mold comprises an upper mold and the second mold comprises a lower mold, following the molding pressure, a secondary pressure smaller than the molding pressure is applied (Sato, Figure 5, "Load on the upper mold" and "Load on the lower mold").

It would have been prima facie obvious at the time the invention was made to combine Sato et al's smaller secondary pressure with Fumiyoshi's lens molding method because both Fumiyoshi and Sato teach similar methods wherein the upper and lower molds are held at differing temperatures and the using the second pressing step would permit the required degree of surface accuracy to be achieved for the lens as taught by Sato (col. 10, lines 65-68).



Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi JP 4-046024 in view of Sato 5228894 and Takeshi JP 8-133767. Fumiyoshi in view of Sato teach the applicant's claimed invention. See the 103(a) rejection and the 102(b) rejection above for Fumiyoshi's teachings and Fumiyoshi in view of Sato et al's teachings. However, Fumiyoshi in view of Sato et al do not teach claim 16.

However, Takeshi (Takeshi, Page 5, Column 8, lines 30-31) teaches that  $b = 5.5\text{mm}$  and  $a = 1.2\text{ mm}$ , where  $a$  is the center thickness of the glass optical element and  $b$  is the peripheral thickness of the glass optical element. At the given measurements,  $b/a$  is greater than 1.5 ( $b/a$  with the given measurements is 4.83).

It would have been prima facie obvious at the time the invention was made to combine Takeshi's center and peripheral thickness measurements with Fumiyoshi in view of Sato et al's lens molding method because using Takeshi's center and peripheral thickness measurements would enhance the versatility of the method by permitting lenses with various focal points and shapes to be made.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi JP 4-046024 in view of Sato 5228894 and JP 63-310735. Fumiyoshi in view of Sato teach the applicant's claimed invention. See the 103(a) rejection and the 102(b) rejection above for Fumiyoshi's teachings and Fumiyoshi in view of Sato et al's teachings. However, Fumiyoshi in view of Sato et al does not teach claim 17.

However, JP 63-310735 teaches a second concave molding surface having a radius of curvature greater than that of the first concave surface (JP 63-310735, Page 8, Column 2, lines 3-4).

It would have been prima facie obvious at the time the invention was made to combine JP 63-310735's molding surface radius of curvature qualification with Fumiyoshi's lens molding method because JP 63-310735's molding surface radius of curvature would enhance the versatility of the method by permitting lenses with various focal points and shapes to be made.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fumiyoshi JP 4-046024 in view of Sato 5228894. Fumiyoshi teaches the applicant's claimed invention. See the 102(b) rejection for Fumiyoshi's teaching. However, Fumiyoshi does not teach claim 20.

However, Sato et al teaches where the first mold comprises an upper mold and the second mold comprises a lower mold, following the molding pressure, a secondary pressure smaller than the molding pressure is applied (Sato, Figure 5, "Load on the upper mold" and "Load on the lower mold").

It would have been prima facie obvious at the time the invention was made to combine Sato et al's smaller secondary pressure with Fumiyoshi's lens molding method because both Fumiyoshi and Sato teach similar methods wherein the upper and lower molds are held at differing temperatures and the using the second pressing step would

permit the required degree of surface accuracy to be achieved for the lens as taught by Sato (col. 10, lines 65-68).

### ***Claim Objections***

Claim 4 is objected to because of the following informality: The phrase "when the second temperature reaches the glass transition temperature" should be changed to "when the second temperature of the second mold reaches the glass transition temperature" to provide clarification for the reader. Appropriate correction is required.

### ***Specification Objections***

Specification paragraph 0018 on pages 7-8 is objected to for minor informalities: On page 5, paragraph 0012 the radius of curvature for surface 1 ( $S_1$ ) was described as being larger than the radius of curvature for surface 2 ( $S_2$ ). Conversely, on page 7, paragraph 0018,  $S_2$  was described having a larger radius of curvature than the radius of curvature for  $S_1$ . Appropriate correction is required.

Specification paragraph 0023, page 10 is objected to for minor informalities: The word "degree" found in lines 1, 7, 11, 12, 16, 18, and 20 should be changed to "degrees." Appropriate correction is required. Please check the remainder of the specification for typographical errors.

Specification paragraph 0035, page 16, line 3 is objected to for a minor informality: The words "degree centigrade" are repeated (duplicative language). One set of the words should be deleted. Appropriate correction is required.

Specification paragraph 0036, page 17 is objected to for a minor informality: lines 1-3 and line 4 up to the period should be deleted due to duplicative language. Appropriate correction is required.

Specification paragraph, 0039, page 17 is objected to for a minor informality: Language is missing at the end of the paragraph. Appropriate correction is required.

### ***Drawing Objections***

Figures 1(a), 1(b), and 1(c) are objected to because of the following informality: Reference numbers to the applicable temperatures referred to in the specification are missing, for example  $ta_1$ ,  $ta_2$ , et cetera.

### ***Conclusion***

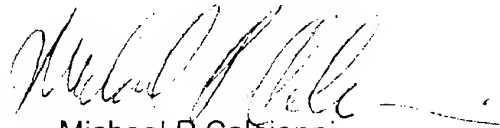
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P Colaianni whose telephone number is 703-305-5493. The examiner can normally be reached on Monday to Thursday and alternate Fridays 9:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



Michael P Colaianni  
Primary Examiner  
Art Unit 1731

MPC  
June 27, 2003

**MICHAEL COLAIANNI**  
**PRIMARY EXAMINER**